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S/069/60/022/02/013/024
D034/D002

RS: Mikhaylov, N.V., Mayboroda, V.I., Nikolayeva, S.S.

: Preparation and Properties of Lyophobic Colloids of Fiber Polymers

DICAL: Kolloidnyy zhurnal, 1960, Vol XXII, Nr 2, pp 223-228 (USSR)

ACT: The authors report on the search of methods to prepare colloidal solutions of fiber-forming polymers (polycaprolactam and polyethyleneterephthalate) and on the study of some physico-chemical properties of these solutions. The authors have shown that aqueous colloidal solutions can be obtained with the ordinary method of condensation precipitation from true solutions of polycaprolactam in formic acid, sulphuric acid and glycerine (the authors obtained colloidal solutions of a polymer concentration of 0.09-0.12,

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ration and Properties of Lyophobic Colloids of Fiber Polymers

0.5 and 2% respectively) and of polyethyleneterephthalate in dimethylformamide (4.5% polymer concentration in the obtained solution). The developed methods (for further particulars see article) hold only for laboratorial practice. It was further established that the colloidal sol of polyethyleneterephthalate is stable for several weeks. The particles are negtively charged, the ζ -potential having a value of 10.8 mV. The isoelectric state sets in at pH 3.8. The polycaprolactam sol has a stability of five to six days. The charge is positive; the ζ -potential equals 33.3 mV. The sol particles of polycaprolactam and polyethyleneterephthalate have an amorphous structure and the shape of regular globules. The size of such globules is equal to 500-1000 Å. The authors mention a number of scientists. In their

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introductory notes they refer to B.A. Dogadkin, S.S. Voyutskiy, Panich, B.V. Shtarkh, D. Sandomirskiy and others for the study of the properties and the processing of latexes of synthetic and natural rubber [Ref 2]. Dogadkin studied the process of preparing aqueous dispersions of rubber by means of solvent exchange [Ref. 2]. S.A. Glikman and L.V. Komarova [Ref. 3] devoted works to the study of the mechanism of the formation of lyophobic polymer sols in organic solvents. During their investigation the authors determined the sign of the charge and the value of the ζ-potential of the colloidal particles with the device designed by A.I. Rabinovich and Ye. F. Fadimen [Ref. 6]. The authors further refer to P. A. Rebinder, who underlined the important structuro-mechanical effect of stabilizers. V.P. Kovaleva

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ration and Properties of Lyophobic Colloids of Fiber Polymers

helped the authors by carrying out the investigation on the structure of the colloidal particles. For this part of the study V.P. Kovaleva used the EM-3, electron microscope with a resolving capacity of 50 Å. The authors finally mention Z.Ya. Berestneva, T.A. Koretskaya and V.A. Kargin [Ref. 8], who explain the presence of chain structures in colloidal systems with the assumption of highly active linkage-favoring sections on the surface of globular particles. There are 2 tables and 16 references, 12 of which are Soviet and 4 English.

IATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna, Mytishchi (Scientific Research Institute of Synthetic Fibers, Mytishchi)

TED: December 7, 1958

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S/183/61/000/001/005/006
B101/B205

AUTHORS: Mikhaylov, N. V., Karetina, T. I., Pokrovskaya, N. B.

TITLE: Stability of solutions of chlorinated polyvinyl chloride mixed with nitrocellulose

PERIODICAL: Khimicheskiye volokna, no. 1, 1961, 24-29

TEXT: A study has been made of the compatibility of different polymers in a common solution and of the practical use of polymers with new compositions for the purpose of checking data published in Ref. 9 on the compatibility of chlorinated polyvinyl chloride (CPVC) with acetyl cellulose. Solutions of CPVC and nitrocellulose (NC) have been studied at a ratio of CPVC:NC = 85:15, 50:50, or 15:85%. The stability of these solutions has been determined, and the distribution of the components on separation of the solution into various layers has been calculated by determining the N content of the upper layer. Like in the case of acetyl cellulose, these systems are unstable. The fact that the viscosity of the mixture is much higher than would correspond to the additive value is indicative of vigorous interaction between CPVC and NC. Fibers with the following data are

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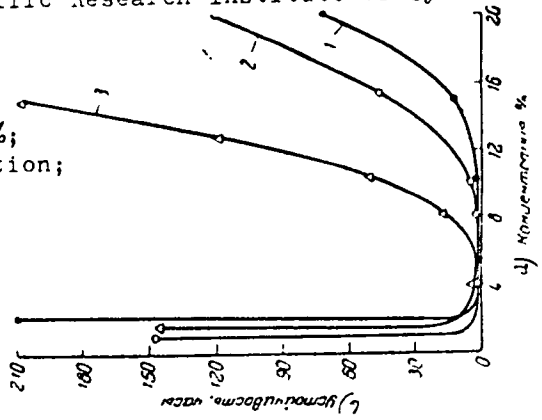
Stability of solutions ...

obtained from such solutions: elementary fiber count: 2200-4400; breaking length: 14-18 km; elongation: 18-29%; number of double flections leading to break: 900-1200. For the production of the fiber it was, however, necessary to determine the stability. Fig. 3 shows stability as a function of concentration. At concentrations of more than 20%, stability is sufficient for commercial use. Viscosity as a function of composition is compared in Fig. 5 with stability as a function of composition. Stability was determined visually. The visible separation into two layers was taken as the limit of stability. Chemical analysis has confirmed the visual observations. At a temperature of 90°C, separation into layers occurs within 2.5 hr. As the volumes of the separated layers depend on the content of the various components, a calibration curve may be used to determine the composition without chemical analysis. The incompatibility of the two components is confirmed by the constitution diagram of Fig. 8. Separation starts already at very low concentrations. It was found that polyvinyl chloride is almost incompatible with NC. Concerning the separation into layers, the following conclusions have been drawn on the strength of the Tyndall effect, the possibility of separating the components by centrifuging (the concentration of the two phases differs from that of the initial

Stability of solutions ...

chase), and of microscopic studies: Interaction occurs between solvent and components; the polymer with the higher solubility carries away a larger amount of the solvent when centrifuged; the solution of the components is a fine-disperse emulsion in which the dispersed substance is the polymer with the lower amount, whereas the dispersing agent is the solution of the polymer with the larger amount. There are 8 figures and 10 references: 9 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: VNIIV (All-Union Scientific Research Institute of Synthetic Fibers)



Legend to Fig. 3: CPVC:NC; 1: 85%:15%; 2: 50%:50%; 3: 15%:85%; a) concentration; b) stability, hr.

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TOKAREVA, L.G.; MIKHAYLOV, N.V.; POTEMKINA, Z.I.; KOVALEVA, M.V.; BORIK, A.G.; ZEMSKOVA, G.N.; ZOTOVA, Ya.E.

Stabilization of polyamide fibers. Khim.volok. no.3:15-21 '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Tokareva, Mikhaylov, Potemkina, Kovaleva). 2. Klinskiy kombinat (for Borik, Zemskova). 3. Mytishchinskiy zavod (for Zotova).

(Textile fibers, Synthetic)

MIKHAYLOV, N.V.; NIKOLAYEVA, S.S.; MAYBORODA, V.I.

Effect of surface tension on interfacial condensation. Vysokom. soed. 3 no.7:991-994 Jl '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Polymerization) (Surface tension)

26299

S/190/61/003/008/012/019
B110/B218

15 5550

AUTHORS: Faynberg, E. Z., Mikhaylov, N. V.

TITLE: Thermochemical criterion of plasticized drawing

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 8, 1961, 1234-1237

TEXT: The Lavsan fiber obtained from polyethylene terephthalate cannot be cold-drawn due to high intramolecular interaction. To avoid the drawbacks of drawing above vitrification temperature (80°C), the authors tried to reduce th intramolecular interaction by adding a plasticizer. In this, the thermal effects of interaction were measured by means of an adiabatic column Results are given in the Table. The experiments showed that equilibrium was established within 20-30 min, and that the major part of heat was liberated at the beginning of interaction Based on their experimental data, the authors stated the following: (1) Cold-drawing is only possible with such plasticizers as exhibit a thermal effect of interaction with the fiber which considerably differs from zero; (2) maximum drawing of the fiber will be brought about with a concentration

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of the plasticizer which exerts a thermal effect of interaction that is close to or even equal to zero; (3) this rule is supposed to hold also for other fibers obtained from polar polymers, which have a high vitrification temperature. There are 1 table and 6 references: 5 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: Ref. 4: B. F. Boyer, R. S. Spenser, J. Polymer Sci., 2, 157, 1947.

ASSOCIATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna (Scientific Research Institute of Synthetic Fibers)

SUBMITTED: December 1, 1960

Table. Thermal effects of interaction of different reagents with Lavsan. Legend: (1) Test number; (2) reagent; (3) concentration of the reagent, %; (4) duration of action of the reagent, min; (5) capability of being cold-drawn; (6) notes; (7) dimethylformamide; (8) ditto; (9) ethanolamine; (10) aniline; (11) dioxane; (12) urea; (13) hydrochloric guanidine; (14) ethyl alcohol; (15) glycol; (16) glycerin; (17) acetone; (18) solution saturated

MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Discussion on cellulose phases. Vysokom.soed. 3 no.9:1430-1432 S '61. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Cellulose)

S/844/62/000/000/100/129
D204/D307

AUTHORS: Mikhaylov, N. V., Tokareva, L. G., Bratchenko, T. D., Karpov, V. L. amd Malinskiy, Yu. M.

TITLE: The action of γ radiation on artificial fibers

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 589-595

TEXT: The effects of 0.05 - 1000 Mrad doses on polyamide and polyester fibers, and the possibility of improving the thermal stability of synthetic fibers and improving their adhesion to rubber by the addition of various monomers, were investigated. Polyethylene terephthalic fiber was practically unaffected under doses of up to 1000 Mrad, owing to the stabilizing effect of the aromatic groups, whilst a caprone fiber was already affected at 1 Mrad. The specific viscosity (η) of 0.5% solutions of irradiated caprone filaments and single fibers (diameter respectively 0.03 and 0.7 mm) was measured. For the thinner fiber, η increased in vacuum and decreased

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n air, whilst η of the monofiber increased when the latter was ir-
adiated both in the presence and absence of air. This, and the
anges in the strength and elongation showed that polyamide fibers
ndergo oxidative processes on irradiation; the greater changes in
ne presence of O_2 were particularly pronounced for the thinner fi-
ers. Thin fibers underwent destruction when irradiated in air,
ilst thicker specimens became structurized owing to the less rea-
diffusion of O_2 into the mass; structurization of the thicker
bers was also observed in vacuum. In contrast to the caprone fi-
er which was mainly structurized in both amorphous and crystalline
ates on irradiation, a terylene fiber was largely destroyed in
ne amorphous and structurized in the crystalline state. This dif-
erence in the behavior of polyamide and polyester fibers is ascri-
ed to the considerably higher crystallinity of the latter. The
bove phenomena should be kept in mind when artificial fiber mate-
als are to be utilized in practice. The effects of additions of
rylonitrile, styrene, toluyldiisocyanate, hexamethylenediisocya-
te and vinylpyridine to the caprone fiber were studied, with

doses of 0.01 - 50 Mrad, finding that in all cases, for a dose of 50 Mrad, the loss in strength was considerably reduced by the monomers, both at 20 and at 80°C. Acrylonitrile grafted on to the caprone fiber. There are 3 figures and 4 tables.

ASSOCIATION: Vsesoyuznyy nacuno-issledovatel skiy institut iskusstvennykh volokon; Fiziko-khimicheskiy institut im. L. Ya. Karpova (All-Union Scientific Research Institute of Artificial Fibers; Physico-Chemical Institute im. L. Ya. Karpov)

S/183/62/000/003/002/002
B117/B144

THOR: Mikhaylov, N. V.

TLE: Main trends in the scientific and technical development of the synthetic fibers industry arising from the resolutions passed at the XXII Party Congress of the CPSU

RIODICAL: Khimicheskiye volokna, no. 3, 1962, 8 - 9

XT: This is a brief summary of a report given at a plenary meeting of e otraslevoye soveshchaniye rabotnikov promyshlennosti khimicheskikh lokon (Special Conference of Workers of the Synthetic Fibers Industry), ld in the Kiyevskiy kombinat (Kiyev Combine) from January 22 to 27, 1962. e main scientific and technical problems in the development of the nthetic fibers industry were discussed. It is the aim of this develop- nt to meet Soviet demands for raw material with various properties, nthetic fibers for textiles, very strong and highly elastic fibers for res, ropes, driving belts, synthetic fibers resistant to chemical action, at, and light, special fibers with insulating and semiconducting proper- es, etc. The promotion of scientific research in existing institutes

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in trends in the scientific...

NIIV, VNIISV) and their brancnes and laboratories was found to be cessary on a very broad basis, also the establishment of new specialized ientific research institutes and centers for the synthetic fibers ndustry, and the intensification of their collaboration with other plants. e main tasks of industrial laboratories, planning and design institutes re as follows: supply of new plants planned and set up within the Seven- ear Plan, reorganization of plants already in operation, and gaining of ientific and technical experience in designing and building new machines nd apparatus. A number of production methods developed by the VNIIV and ther plants were mentioned. The following tasks were also mentioned: ontinuation of investigations and application of the results of research tne production of cellulose fibers; increase of the production of syn- hetic fibers from inexpensive raw material (e.g. natural gas, by-products f petroleum refining); increase in the production of polycaprolactam, olyethylene terephthalate, polypropylene, polyvinyl alcohol, polychloro- inyl, polyacrylonitrile, and special fibers from cyclic, elemental- rganic, and chelate polymers; development of efficient methods for produc- ng tne above-mentioned fibers; development of efficient, continuously perating units for obtaining melts and polymer solutions; design and

ard 2/3

esting of a pilot plant for the direct production of polyamide and polyester fibers from monomers by interfacial condensation, development of apparatus for 1-stage polymerization in the solid phase. In this connection, it was found necessary to establish special institutes, expand scientific research and training centers, and train highly qualified scientific specialists and engineers for the synthetic fibers industry.

SSOCIATION: VNIIV

ard 3/3

TOKAREVA, L.G.; MIKHAYLOV, N.V.; ROZOVA, N.N.; KIRPICHNIKOV, P.A.

Lightfastness of polypropylene and fiber based on it. Khim. volok. no.3:23-25 '62. (MIRA 16:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Propene) (Textile fibers, Synthetic) (Photochemistry)

MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Heat capacity and phase state of cellulose fibers of various structure. V. sokom.soed. 4 no.2:230-236 F '62. (MIRA 15:4)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Hydrocellulose--Thermal properties)

S/190/6[illegible]
B[illegible]/B[illegible]

AUTHORS: Mikhaylov, N. V., Faynberg, E. Z., Gorbacheva, V. [illegible], Ch'eng Ch'ing-hai

TITLE: Compatibility of the system polyethylene - polypropylene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, [illegible], 237 - 241

TEXT: A method of combining polyhydrocarbons from their solutions has been developed. A mixture of low-density polyethylene (PE) and isotactic polypropylene (PP) was produced via o-xylene or white spirit or melt with different PE : PP ratios. Dissolution took 40 - 50 min at [illegible]°C (total concentration = 0.1; 0.5; 5%). The precipitate formed by cooling to 80 - 85°C was eluted with acetone to remove the solvent. The physico-chemical properties of polymer mixtures were studied by (a) differential thermal analysis; (b) thermochemically; (c) density measurement. The endothermic effects of the heating curves for pure polymers and copolymers correspond to the temperature range of melting. The two endothermic effects of the curves for polymer mixtures correspond to the temperature range of

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S, [illegible]
Compatibility of the system B[illegible]

the transition of pure polymers, and only for mixtures [illegible]; [illegible]; 9 : 1; 9.5 : 0.5; and 9.8 : 0.2, they showed only one endotherm [illegible] like the curves for the initial polymers. The concentration range of compatibility is limited; concentration decrease of PE and increase of PP effect demixing. Since the temperature range of melting of copolymers differs by 15 - 18°C from that of pure PE, the difference should be smaller for combined mixtures. This also agrees with Flory's idea on the decrease of the melting point when plasticizing one polymer by another (low- or high-molecular). Comparisons of the heat capacity with [illegible] the copolymer are used as a criterion for the degree of compatibility of polymer mixtures. The heat capacities of pure homopolymers are [illegible] each other, and strongly differ from those of copolymers. The [illegible] mixture 8 : 2 has maximum heat capacity and optimum compatibility. [illegible] density (0.915) of the copolymer corresponds to maximum heat capacity (0.500). The copolymer has a lower than the additive density, and [illegible] molecular packing of lower density. The density of [illegible] is lower than the additive value. The mixture [illegible] was maximum deviation. This proves a plasticizing effect of PE on PP [illegible] flexibility of the polymer chains of PE. This effects [illegible] stiffness of PP, and facilitates its compatibility with PE [illegible]

Card 2/3

ompatibility of the system.

S, 190, 6, 004, 00 [illegible]
B 10 B [illegible]

figures, 2 tables, and 3 references: 2 Soviet and 1 non Soviet. The eference to the English-language publication reads as follows: R Kee, Polymer Sci , 42, 15, 1960.

SSOCIATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna (Scientific Research Institute of Synthetic Fibers

UBMITTED: February 9, 1961

rd 3/3

11 2910
15 8161

AUTHORS: [illegible]
[illegible]

TITLE: [illegible]

PERIODICAL: [illegible]

TEXT: The combustion heats of isotactic polypropylene [illegible] fractions cut [illegible] therefrom by extraction with ether [illegible] heptane [illegible] aimed to repair the lack of experimental data permitting [illegible] estimate of intermolecular interaction energy in the [illegible] and atactic polymers. Respective data on two different samples (I and II) served as test material: Viscometric molecular weight: [illegible] and 150,000; ether fraction content: 11.[illegible] and [illegible]; heptane fraction content: 11.5 and 4.5%; isotactic crystalline polypropylene: [illegible] 41%; ash content: 0.01 - 0.02%. $TiCl_3 + Al(Et)_3$ was the catalyst for polymerization. Combustion took place in a self-packing steel [illegible] (design by the MGU thermomechanical laboratory). Initial [illegible]

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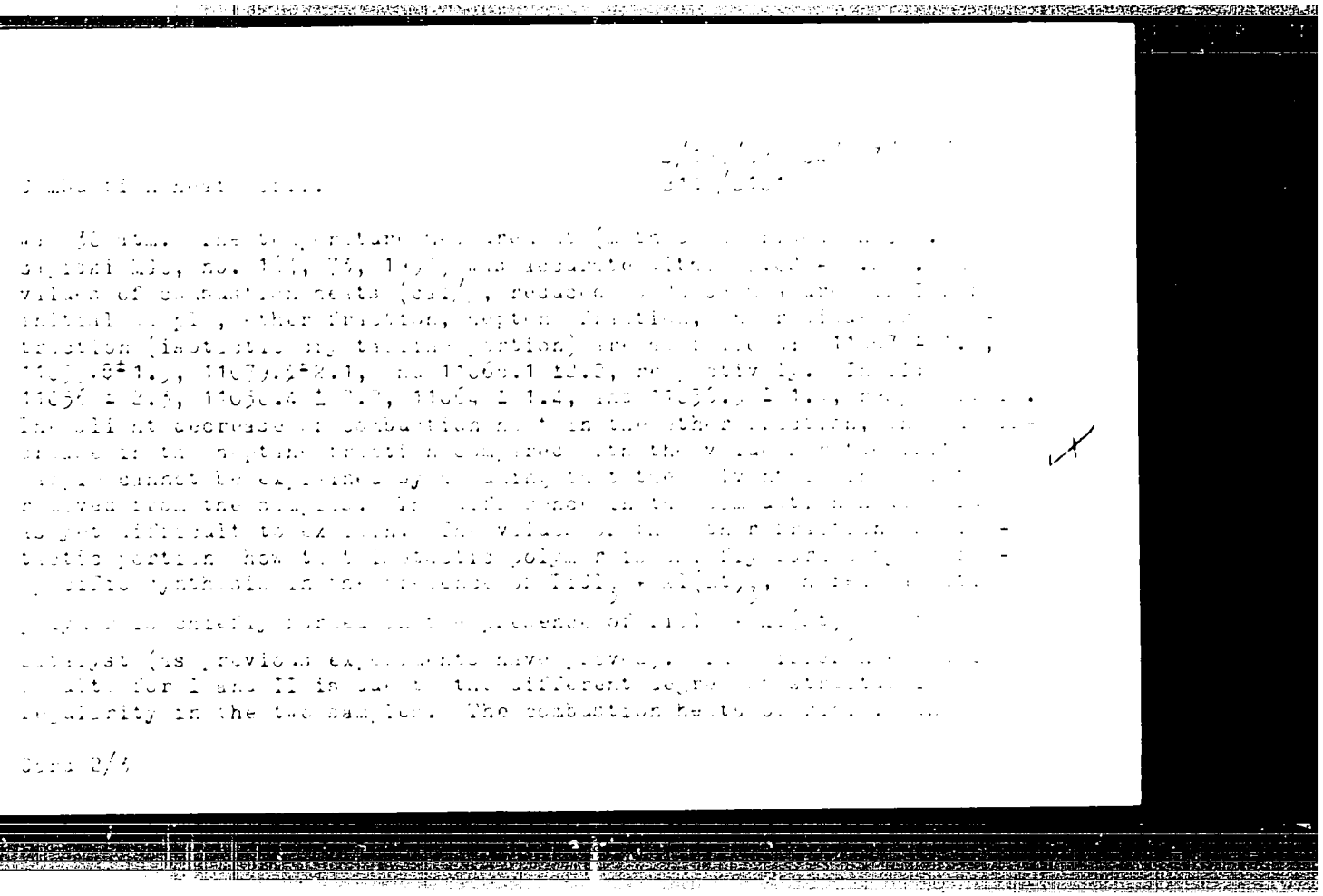

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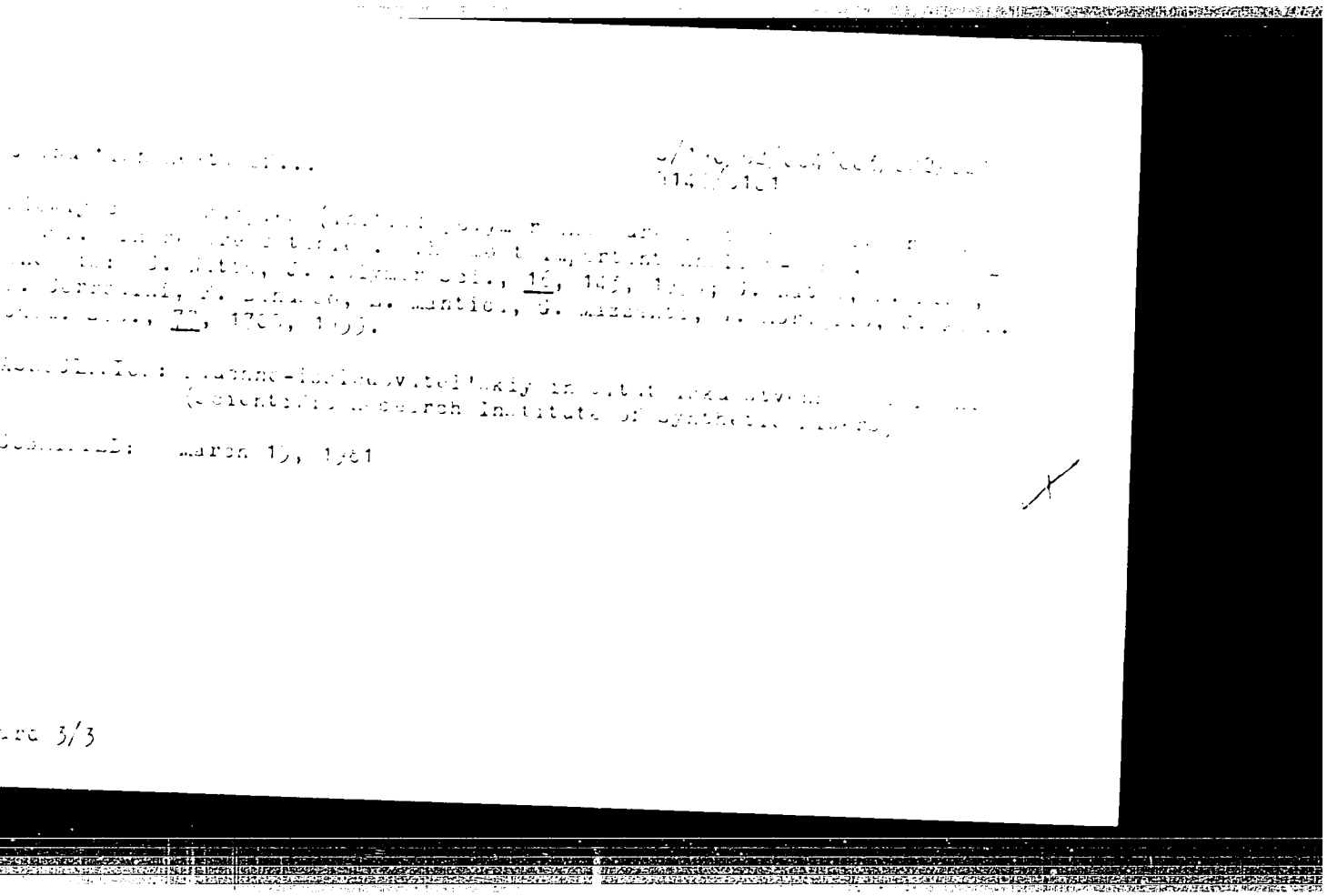

...ted: March 19, 1961

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39847
S/190/62/004/008/005/016
B101/B138

AUTHORS: Mikhaylov, N. V., Shablygin, M. V.

TITLE: Procedure for producing and evaluating infrared absorption spectra of fibers in polarized light

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 8, 1962, 1155-1162

TEXT: IR absorption spectra of fibers in polarized light were discussed and compared, with parallel light rays passed through (A) a number of parallel fibers and (B) a single fiber. Method A is based on the theories of R. D. B. Fraser (J. Opt. Soc. America, 46, 1017, 1956) and O. B. Wilman (J. Chem. Phys., 27, 324, 1957). Immersion band compensation and the effect of fiber packing, i. e. the effect of the packing coefficient on the optical density of the absorption bands, are discussed. Equations were derived for calculating the equivalent immersion layer and packing coefficient. The theoretical results were confirmed by experiments with perlon fibers, using hexachloropropylene or vaseline oil as immersion agents. For method B, a special reflecting microscope was used. A [illegible] loss in light intensity due to scattering from the fiber surface

Card 1/2

rocedure for producing and evaluating ... B101/B136

successfully reduced by rolling the fiber. This imparts a qualitative character to the absorption spectra. CBr_4 was used as immersion agent, and a heater was designed so that photomicrographs could be made of single fibers at up to 200°C. Comparison of the two types of spectra provides information on the fiber structure. There are 8 figures.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

SUBMITTED: May 4, 1961

Card 2/2

39849

S/190/62/004/008/008/016
B101/B180

5.3833

AUTHORS: Mikhaylov, N. V., Tokareva, L. G., Duravchenko, K. K., Terekhova, G. M., Kirpichnikov, P. A.

TITLE: Stabilization of polyethylene terephthalate melts

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 8, 1962, 1186-1192

TEXT: In this fifth report on the ageing of synthetic fibers, the authors studied the thermooxidative decomposition of polyethylene terephthalate (PET) (initial intrinsic viscosity $[\eta]$ = 0.245; after reprecipitation $[\eta]$ = 0.256) at 170 - 220°C (methods see Kolloidn. zh., 18, 576, 1956) and their inhibition by esters of phosphorous acid. Results: (1) Heating to 220°C in N_2 shows no change in $[\eta]$. When heated in air, $[\eta]$ decreased more slowly in PET with reprecipitation refining than without. It is therefore assumed that thermooxidative processes occur with the formation of COH and COOH groups and destruction of the ester bond. The PET fiber Lavsan behaved similarly: initial breaking

Card 1/3

Stabilization of polyethylene ...

strength (kg/mm^2) = 42.8; after 4 hrs at 170°C in N_2, 41.6 and at 210°C in N_2, 36.5; after 4 hrs at 170°C in air, 39.5, and at 210°C, 14.2. (2) Triphenyl phosphite (I), tri-p-octyl-phenyl phosphite (II), tri-p-dodecyl phenyl phosphite (III), and tri-p-ter-butyl phenyl phosphite (IV) inhibit the thermal decomposition of PET, and increase its molecular weight and stability. The best moment for adding the inhibitor is at 50-70% polycondensation of PET. (3) After 2 hrs at 285°C the breaking strength of PET without inhibitor was 47% the initial value 71% with I, 66% with II, 78% with III, and 75% with IV. The longest induction period and smallest loss in molecular weight were found with IV. The inhibiting effect of phosphites is attributed to the fact that they hydrolyze much more easily than PET which is thus protected against hydrolysis. There are 6 figures and 4 tables. The most important English-language reference is: J. M. Ward, Nature, 80, 141, 142, 1957.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

tabilization of polyethylene ...

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B101/B180

CBMITTED: May 8, 1961

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38110
S/020/62/144/002/023/028
B101/B110

AUTHORS: Vlasov, A. V., Glazunov, P. Ya., Mikhaylov, N. V., Rafikov, S. R., Tokareva, L. G., Tsetlin, B. L., and Shablygin, M. V.

TITLE: Formation of oriented structures in radiation-induced polymerization of vinyl monomers on fibers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 2, 1962, 382 - 383

TEXT: An attempt was made to obtain oriented polymers by polymerizing the monomer from the gas phase on oriented macromolecules of fibers acting as "matrices". The experiments were made with a two-chamber apparatus as used for graft polymerization of vinyl monomers on mineral particles (cf. B. L. Tsetlin et al., Tr. 2-go Vsesoyuzn. soveshch. po radiatsionnoy khimii, Izd. AN SSSR, 1962). One chamber contained caprone cord fiber heated to 80°C, and the other contained completely anhydrous acrylonitrile (40°C). Irradiation was made with X-rays (dose rate, $3 \cdot 10^{15}$ ev/cm^3·sec) for 3 - 6 hrs at 10^{-4} - 10^{-5} mm Hg. The weight of the fiber increased by 15 - 33 %. The perpendicular dichroism in the -C≡N stretching vibrations (2235 cm^{-1}),

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detected by spectroscopy, proved the orientation of the polymer. Experiments with acrylonitrile and non-oriented fiber as well as with liquid acrylonitrile and oriented fiber showed no dichroism. The liquid monomer molecules are assumed to prevent orientation. Further experiments with polymers, man-made and natural fibers used as "matrices" are under way. There is 1 figure.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR). Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

PRESENTED: January 19, 1962, by V. A. Kargin, Academician

SUBMITTED: January 12, 1962

KOLESNIKOV, G.S., otv. red.; ANDRIANOV, K.A., red.; DOGADKIN, B.A., red.; DOLGOPLOSK, B.A., red.; YENIKOLOPYAN, N.S., red.; KARGIN, V.A., red.; KOZLOV, P.V., red.; KOROTKOV, A.A., red ; KORSHAK, V.V., red.; LAZURKIN, Yu.S., red.; MEDVEDEV, S.S., red.; MIKHAYLOV, N.V., red.; PASYNSKIY, A.G., red.; SLONIMSKIY, G.L., red.; SMIRNOV, V.S., red.; TSVETKOV, V.N., red.; FREYMAN-KRUPENSKIY, D.A., tekhn. red.

[Heterochain high-molecular weight compounds] Geterotsepnye vysokomolekuliarnye soedineniia; sbornik statei. Moskva, Izd-vo "Nauka," 1963. 246 p. (MIRA 17:3)

BRUYEVICH, N.V.; BREYTMAN, Z.M.; REZNIKOV, Yu.M.; MIKHAYLOV, N.V., inzh., retsenzent; KURATTSEV, L.Ye., red.; GORDEYEVA, L.P., tekhn. red.

[Technical measurements in the bearing industry] Tekhnicheskie izmereniia v podshipnikovoi promyshlennosti. Moskva, Mashgiz, 1963. 198 p. (MIRA 17:2)

KOZLOV, P.V., otv. red.; ANDRIANOV, K.A., red.; DOGADKIN, B.A., red.; DOLGOPLOSK, V.A., red.; YENIKOLOPYAN, N.S., red.; KARGIN, V.A., red.; KOLESNIKOV, G.S., red., KOROTKOV, A.A., red.; KURSHAK, V.V., red., LAZURKIN, Yu.S., red.; MEDVEDEV, S.S., red.; MIKHAYLOV, N.V., red., PASYNSKIY, A.G., red.; SLONIMSKIY, G.L., red.; SMIRNOV, V.S., red., TSVETKOV, V.N., red., FREYMAN-KRUPENSKIY, D.A., tekhn. red.

[Adhesion of polymers] Adgeziia polimerov, sbornik statei. Moskva, Izd-vo AN SSSR, 1963 142 p. (MIRA 16:10)
(Polymers) (Adhesion)

KOLESNIKOV, G.S., otv. red.; ANDRIANOV, K.A., red.; DOGADKIN, B.A., red.; DOLGOPLOSK, B.A., red.; YENIKOLOPYAN, N.S., red.; KARGIN, V.A., red.; KOZLOV, P.V., red.; KOROTKOV, A.A., red.; KORSHAK, V.V., red.; LAZURKIN, Yu.S., red.; MEDVEDEV, S.S., red.; MIKHAYLOV, N.V., red.; PASYNSKIY, A.G., red.; SLONIMSKIY, G.L., red.; SMIRNOV, V.S., red.; TSVETKOV, V.N., red.; FREYMAN-KRUPENSKIY, K.A., tekhn. red.

[Carbochain high-molecular weight compounds] Karbotsepnye vysokomolekuliarnye soedineniia; sbornik statei. Moskva, Izd-vo AN SSSR, 1963. 287 p. (MIRA 17:1)

S/183/63/000/002/002/003
A051/A126

AUTHORS: Mikhaylov, N.V., Mayboroda, V.I., Vorob'yeva, T.V., Bilik, I.M.

TITLE: Polymer production by the interphase polycondensation method

PERIODICAL: Khimicheskiye volokna, no. 2, 1963, 19 - 22

TEXT: A study was conducted to establish production conditions of high-melting polymers and the possibility of a direct film formation from the corresponding monomers (with subsequent fiber formation) during the polycondensation process at the phase interphase. Fiber formation during polycondensation would result in high-melting fibers obtained by a simple and more effective method. A high-melting polyether capable of forming film on the phase interphase was produced. The effect of the concentration of the initial monomers, of their ratio and the nature of the organic solvents used, on yield, specific viscosity and film formation was established. The monomers investigated were: dichloranhydrides of sebacic, adipic and terephthalic acids, and also hydroquinone and 4,4'-dioxydiphenylpropane (Dian). The melting point was determined according to the differential-thermal analysis method (N.S. Kurnakov). The ability of the

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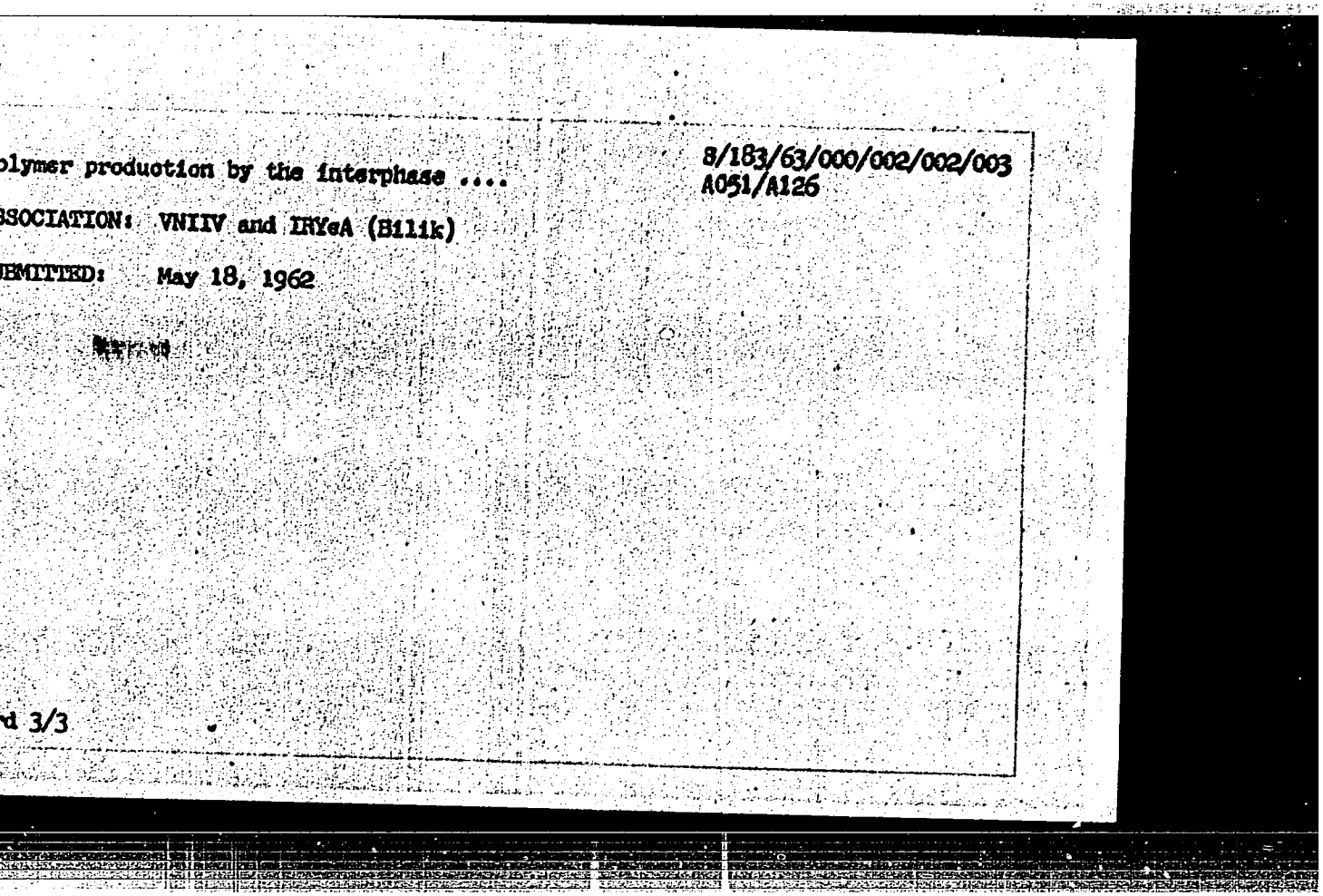
Polymer production by the interphase ....

x-monomers to form film during the polycondensation process on the phase interphase was tested at different concentrations, temperatures and solvents. Optimum conditions for the polymer production were found to be: reaction temperature 20°C, concentration (of the triethylbenzyl ammonium hydroxide) 0.2%. The polymer obtained under these conditions had a viscosity of 0.43, a yield of 90% of the theoretical value, melting range 345 - 350°C. A firm and elastic film was produced. These properties and the rate of formation of the film on the phase interphase were found to depend on the nature of the organic solvent used to dissolve the dichloroanhydrides. Of various other solvents tested, cumol (isopropylbenzene) was found to yield the highest rate of film formation. The obtained polymers were tested by x-ray and thermographic methods at the VNIIV. The synthesized polymers were found to have a crystalline structure. The highest degree of crystallinity was found in the polymer produced from dichloroanhydride of adipic acid and hydroquinone. X-ray structural analysis showed that heating and cooling of the investigated polymers results in phase shifting connected with melting and polymer crystallization. The highest melting point (345 - 350°C) was obtained for the polymer produced from Dian and dichloroanhydride of terephthalic acid. There are 6 figures and 3 tables.



olymer production by the interphase ....

8/183/63/000/002/002/003
A051/A126

SSOCIATION: VNIIV and IKYeA (Bilik)

EMITTED: May 18, 1962

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MIKHAYLOV, N.V.; GORBACHEVA, V.O.; KHAIT, E.V.; KACHANYUK, Yu.K.; KHOKHLOVA, N.S.

Molecular structure and the physicomechanical properties of polyamide cord. Khim. volok. no.4:26-28 '63. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 17477-63 EWP(j)/EWT(m)/BDS AFFTC/ASD Pc-4 RM

ACCESSION NR: AP3004763 S/0183/63/000/004/0066/0067

AUTHORS: Mikhaylov, N. V.; Strashnova, T. T.; Terekhova, G. M. 15 62

TITLE: Method of determining phosphorus in polymers and their fibers

SOURCE: Khimicheskiye volokna, no. 4, 1963, 66-67

TOPIC TAGS: colorimetry, P, polyester, polyamide, ammonium molybdate, MoP complex, ferrous iron, phosphorus

ABSTRACT: The colorimetric method developed for determining P in polymers (including P-containing heterochain polymers such as polyesters and polyamides) can be used with P concentrations as low as 10^{-5} mg./l. with an accuracy of 0.1%, absolute value. Ammonium molybdate is used to form an MoP complex which is reduced with ferrous iron released from $NH_4Fe(SO_4)_2 \cdot 12H_2O$ by the presence of Na_2SO_3. Orig. art. has: 1 figure, 2 formulas.

ASSOCIATION: VNIIV (All-union scientific research institute of synthetic fibers).

SUBMITTED: 11Dec63 DATE ACQ: 20Aug63 ENCL: 00

SUB CODE: MA, EL NO REF SOV: 003 OTHER: 007

Card 1/1

AFANAS'YEVA, G.N.; VOL'F, L.A.; MEOS, A.I.; GORBACHEVA, V.O.; MIKHAYLOV, N.V.; MIL'KOVA, L.P.

Thermoplasticization stretching of polyvinyl alcohol fibers. Khim. volok. no.5:16-19 '63. (MIRA 16:10)

1. Leningradskiy tekstil'nyy institut imeni S.M. Kirova (for Afanas'yeva, Vol'f, Meos). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Gorbacheva, Mikhaylov, (Mil'kova).

MIKHAYLOV, N.V.; GORBACHEVA, V.O.; IYEVLEVA, A.K.

Determination of the specific volumes of synthetic fibers at elevated temperatures. Khim. volok. no.5:26-28 '63.
(MIRA 16:10)

1. Vsesoyuznyy nauchn-issledovatel'skiy institut iskusstvennogo volokna.

VLASOV, A.V.; MIKHAYLOV, N.V.; [illegible]; RAFIKOV, S.R.; TSETLIN, B.L.; GLAZUNOV, [illegible].

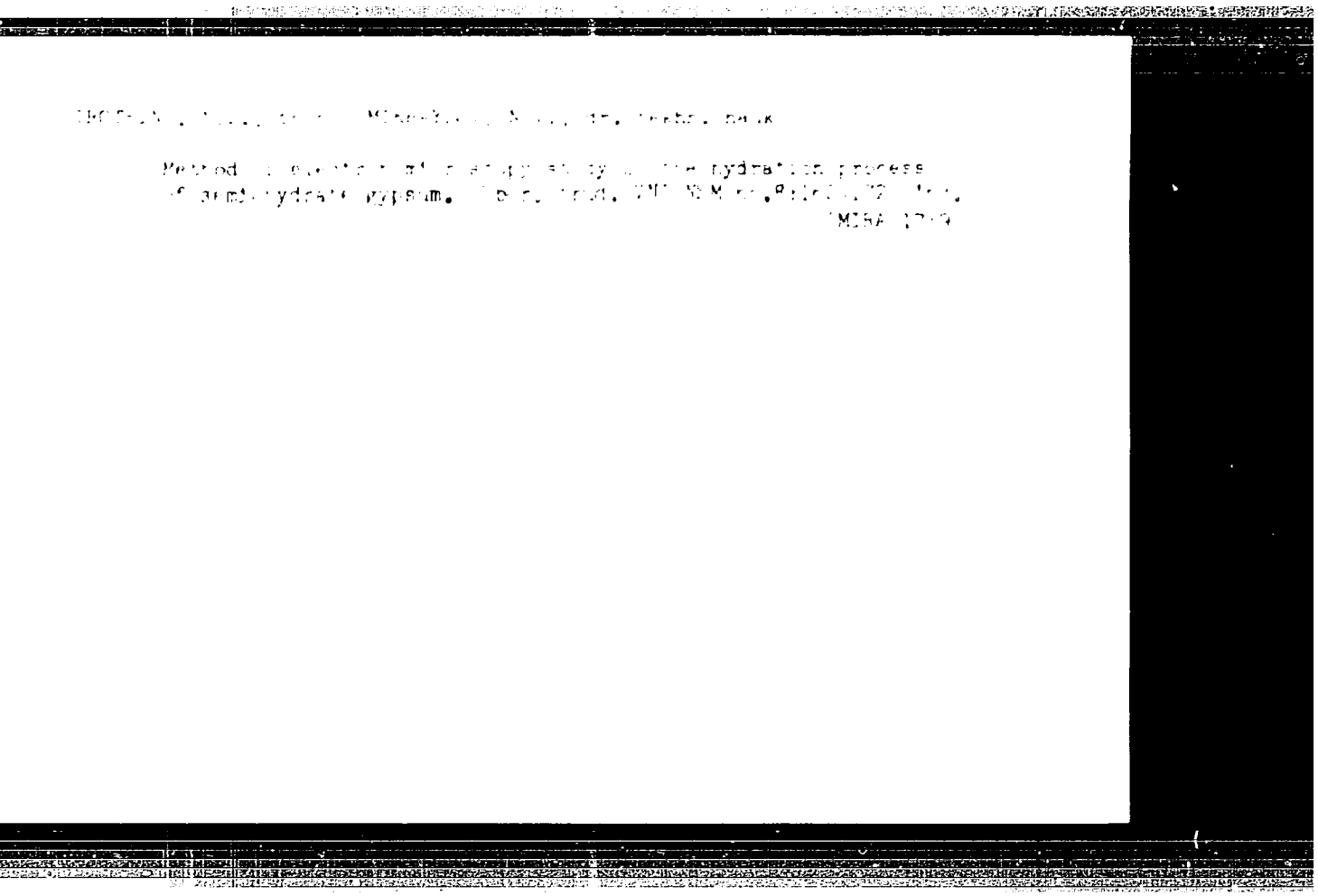
Radiation-induced graft polymerization from the gas phase. Khim.volok no. 6:24-28 '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Vlasov, Mikhaylov, Tokareva). 2. Institut elementoorganicheskikh soyedineniy AN SSSR (for Rafikov, TSetlin). 3. Institut fizicheskoy khimii AN SSSR (for Glazunov).

SHABLYGIN, M.V.; MIKHAYLOV, N.V.

Immersion method used for obtaining the infrared absorption spectra of fibers in the polarized light. Khim.volok no.6:51-55 '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.



9008-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/EWP(j)/T/EWP(b) Pc-4/
-4/Ps-4/Pt-10/Pu-4/Pab-24 RPL/SSD/ASD(mp)-2/ASD(m)-3/AFETR/AFWL/BSD RM/WH/

CCESSION NR: AP4006286 S/0286/63/000/023/0040/0040

THORS: Tsetlin, V. L.; Vlasov, A. V.; Glazunov, P. Ya.; Mikhaylov, N. V.; talakh, I. I.; Polak, L. S.; Rafikov, S. R.; Tokareva, L. G.

TLE: A method for preparing graft copolymers. Class 29, no. 158979

URCE: Byul. izobret. i tovarn. znakov, no. 23, 1963, 40

PIC TAGS: copolymer, graft copolymer, copolymerization, radiation copolymerization, gas phase radiation copolymerization, synthetic fiber, synthetic film, ectrical property, magnetic property, mechanical property, monomer vapor radiation, acetylene series monomer, acrylonitrile, heat treatment, acetylenic nomer

STRACT: This Author Certificate introduces a method for obtaining graft polymers by gaseous phase radiation polymerization. To obtain fibers and films th special electrophysical and magnetic properties and of high mechanical rength, synthetic fibers and films and mineral fibers, such as fiberglass, are radiated. This process is conducted in the presence of vaporized monomers of e acetylene order or acrylonitrile and is followed by a thermal treatment.

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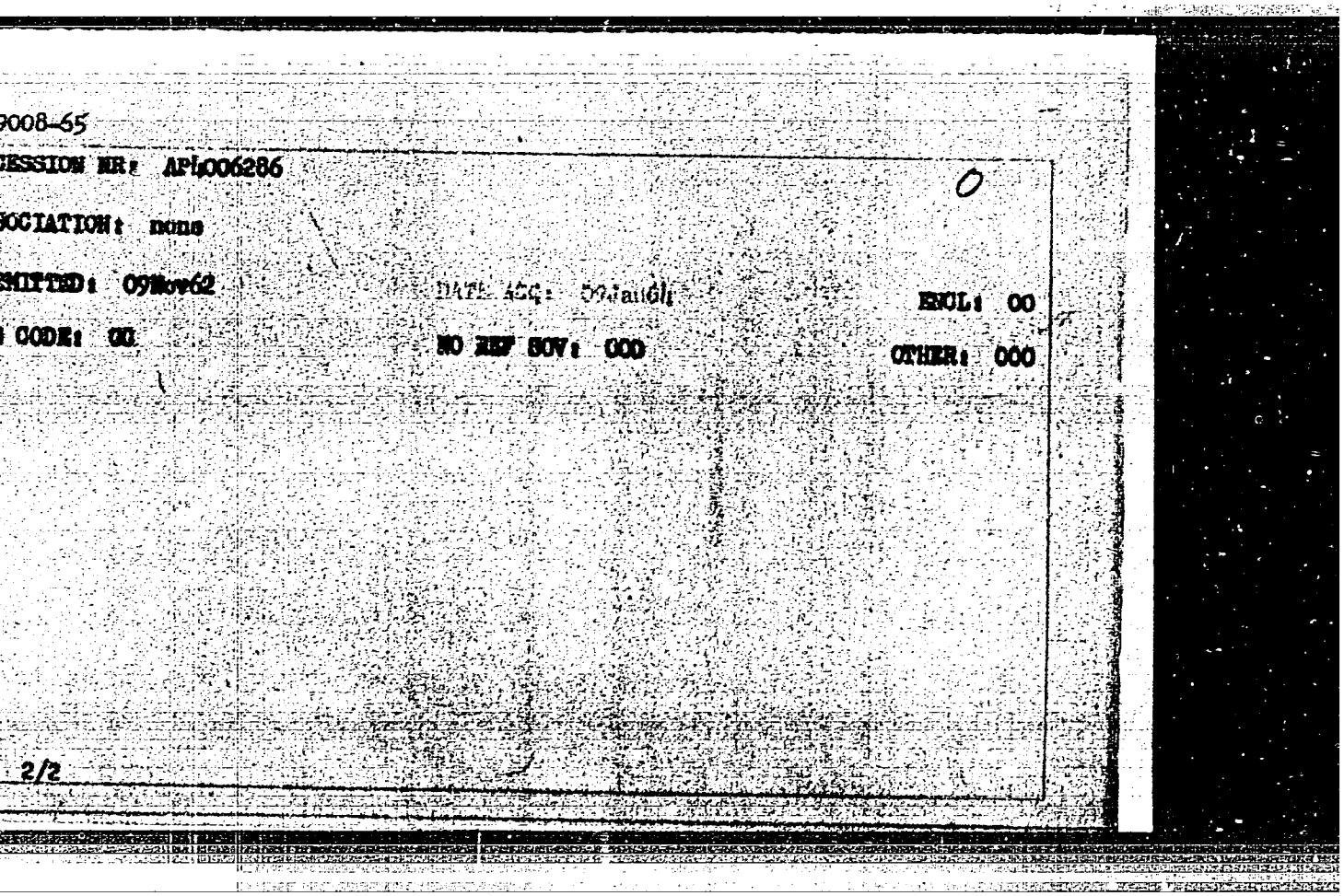

9008-65

CESSION NR: AP1006286

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SOCIATION: none

SMITTED: 09Nov62 DATE ACQ: 30Jan63 ENCL: 00

CODE: GS NO REF SOV: 000 OTHER: 000

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15.8200

S/190/63/005/002/005/024
B101/B102

AUTHORS: Mikhaylov, N. V., Tukareva, L. G., Popov, A. G.

TITLE: Stabilization of polypropylene and of fibers made thereof against heat

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 2, 1963, 188-194

TEXT: The effects due to 0.03 mole/kg additions of stabilizers were compared by measuring the oxygen absorption of the polypropylene at 200, 250, and 300°C and by determining the effect of the stabilizers on the breaking length of fibers drawn from the polymer at 220-250°C. At 200°C, oxidation of the polymer set in without stabilizer after an induction period of 5-7 min. The induction period was prolonged by 2,5-di-tert-butyl-4-methyl phenol (ionol) to 20 min, by П-24 (F-24) phenol - styrene copolymer to 40 min, by 2,2'-methylene-bis-(4-methyl-6-tert-butyl phenol) (2246) to 120 min and by N,N'-phenyl-cyclohexyl-p-phenylene diamine (4010) to 130 min. At 250°C a two-stage induction period was observed, particularly in the presence of dibenzyl sulfide. The first induction period was

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Stabilization of polypropylene ...

10 min, the second ~300 min. At 300°C, the absorption curves became complicated in consequence of simultaneous thermooxidation and thermal degradation. The effects of the stabilizers on the polymer and on the drawn polymer fiber were divergent. At 250°C, and with the addition of 2246 or phenol croton aldehyde condensation product T-26 (P-26), the induction periods were respectively 120 and 130 min for the polymer, but only 45 and 80 min for the fiber. With N,N'-di-β-naphthyl-p-phenylene diamine, the induction period of the polymer was 10 min, that of the fiber 120 min. Crosslinking, and increased solubility of the stabilizer in the fiber as a result of the drawing, are suggested as explanations of the longer induction period of the fiber compared with the polymer. Reduction of the induction period can be due to the stabilizer becoming insoluble in the fiber or being decomposed in the drawing. This problem calls for further investigation. The effect of the stabilizer on the breaking length (km) and elongation (%) of the fiber after 8 hrs heating at 150°C was studied. The best results were obtained with 2,6-di-tert-butyl-4-methyl-phenyl pyrocatechol phosphite, 4,4'-diisobornyl-4-methyl phenol (264), 2,2'-thio-bis-(6-tert-butyl-4-methyl phenol) (KAO-6 [KAO-6]), 2264 and mixtures of stabilizers with sulfur-containing organic compounds. Without stabilizer the polypropylene fiber did not endure the test; with the

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Stabilization of polypropylene ...

stabilizers mentioned, a residual breaking length of 60-70% was reached. No connection was found between the length of the induction period and the stabilization against heat. A synergetic effect was observed in mixtures, e.g., of 264 + 4010, ratio 1:1 (residual breaking length 67.2%). Particularly, 2,6-di-tert-butyl-4-methyl-phenyl pyrocatechol phosphite, terpene phenols and mixtures of these substances with sulfur- as well as phosphorus-containing compounds are efficient stabilizers of the polypropylene fiber. There are 1 figure and 2 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

SUBMITTED: July 15, 1961

Card 3/3

15.8150

45397
S/190/63/005/002/008/024
B101/B102

AUTHORS: Volokhina, A. V., Kudryavtsev, G. I., Mikhaylov, N. V., Rokachevskaya, O. P.

TITLE: Study of ring copolymerization. I. Copolymerization of α-piperidone with ε-caprolactam

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 2, 1963, 206-211

TEXT: The possibility was studied of obtaining high-molecular fiber-forming polyamides on the basis of α-piperidone by copolymerizing it with ε-caprolactam (CL). Two techniques were applied: (1) Copolymerization at 40-45°C, 1-2 mm Hg, CL content 0-80%, and at 90°C with 90 and 100% CL; (2) in nitrogen atmosphere at 100, 120, and 160°C. The catalysts used were 2.5 mole% potassium and 1.2 mole% N-acetyl piperidone. Results with process (1): At 40-45°C, the polymerization time was 6 hrs, at 18-20°C 18 hrs, the yields (~ 60%) and m.p. of the copolymers depended on the composition and were always higher than in the homopolymers. Mutual activation of piperidone and CL was observed. With equimolecular component

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ratio the m.p. decreased to ~0°C, so that copolymerization ensued at room temperature. The maximum yield was obtained with 40% piperidone and 60% CL. With equimolecular component, ratio the copolymer contained equally equimolecular parts of the components. Results in process (2): The yield increased with rising CL content. α-piperidone in itself and its 80-90% mixture with CL could not be polymerized under these conditions. The m.p. of the copolymer increased with increasing CL content. The optimum yield, 97%, was obtained with 30% piperidone + 70% CL. The polymerization time was 4 hrs at 100°C, 2 hrs at 120°C, 1 hr at 160°C. The melting point increases with rising polymerization temperature and reaches 180-185°C. The molecular weight is not affected by varying the addition of potassium between 1 and 2.5 mole%, but it is reduced when the addition of N-acetyl piperidone is increased from 0.25 to 1 mole%. At ~195°C, a fiber was drawn from the copolymer melt having an intrinsic viscosity of 0.6, which had 400-500% elongation at room temperature. The increase in reactivity of the α-piperidone in the presence of CL is due to thermodynamic and kinetic particularities of the process, which must be further investigated. There are 4 figures and 1 table. The most important. English-language reference is: N. Joda, A. Mijake, J. Polymer Sci., 43, 117, 1960.

Card 2/3

Study of ring copolymerization. ...

S/190/63/005/002/008/024
B101/B102

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

SUBMITTED: July 28, 1961

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L3519-63 EWP(1)/EWT(m)/BDS/ES(v) AFFTC/ASD Pc-4/Pe-4 RM

CESSION NR: AP3001151 S/0190/63/005/006/0826/0830

THOR: Nikolayeva, S. S.; Faynberg, E. Z.; Mikhaylov, N. V.

TLE: Structural characteristics of polyamides obtained by the interfacial polycondensation method

URCE: Vysokomolekulyarnyye soyedineniya, v. 5, no. 6, 1963, 826-830

PIC TAGS: polyamide, interfacial polycondensation, structural characteristic, lon fiber, polyamide, density value

STRACT: The inferior physico-chemical properties of nylon fibers synthesized the interfacial polycondensation method, as compared with those obtained by e classical melt procedure, induced the authors to conduct this study. They investigated nylon 6-6 (polyhexamethyleneadipinamide) and nylon 6-10 (polyhexamethylesebcamide), with emphasis on the role played by the fiber's density. The fibers re plasticized by immersion in water or in 5% formic acid, and their density was asured at certain intervals until an equilibrium state was established. It took lon 6-6 nearly 33 days in water and 4 days in formic acid to reach densities of 9379 and 1.0200 respectively, the equilibrium densities for nylon 6-10 in water d formic acid being 1.0746 and 1.1889, reached within 14 and 2 days. The

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3519-63
ESSION NR: AP3001151

retching of the plasticized fibers at equilibrium was conducted at 175C either a heated surface or in the plasticizing medium. These, as well as x-ray studs, lead to the conclusion that the low density of the 6-6 and 6-10 nylons was to their being in a state of nonequilibrium caused by the conditions of interial polycondensation. Orig. art. has: 3 tables.

SOCIATION: Vsesoyuznly nauchno-issledovatel'skiy institut iskusstvennogo volok- (All-Union Scientific-Research Institute of Synthetic Fiber)

MITTED: 14Nov61 DATE ACQ: 01Jul63 ENCL: 00

CODE: 00 NO REF SOV: 009 OTHER: 003

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MIKHAILOV, N.V.; SHABLYGIN, M.V.; VOLOKHINA, A.V.

Mutual effect of monomers during their copolymerization. Vysokom. soed. 5 no.11:1757 N '63. (MIRA 17:1)

BERESTNEV, V.A.; NAGDASEVA, I.P., KOZYREVA, Z.M., TOKAREVA, L.G., POTEMKINA, Z.I., MIKHAYLOV, N.V., KARGIN, V.A.

Effect of thermal stabilizers on the structure of capron fibers. Khim. volok. no.2:35-41 '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut [illegible] (for Berestnev, Nagdaseva, Kozyreva, [illegible] issledovatel'skiy institut iskusstvennogo [illegible] Tokareva, Potemkina, Mikhaylov).

GORBACHEVA, V.O.; KRASOVA, I.I.; TOKAREVA, L.G.; POTEMKINA, Z.I.; MIKHAYLOV, N.V.

Morphological characteristics of a stabilized capron fiber. Khim. volok. no.3:19-23 '64. (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

15515-65 EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4/Pt-10
D/AEDC(a)/AFWL/ASD(p)-3 WW/RM

CCESSION NR: AP4042737 S/0183/64/000/004/0028/0032

UTHORS: Terekhova, G.M.; Mikhaylov, N.V.; Tokareva, L.G. 8

ITLE: Effect of heat stabilizers on the synthesis of polyethyl-
eneterephthalate

OURCE: Khimicheskiye volokna, no. 4, 1964, 28-32

OPIC TAGS: polyethyleneterephthalate, synthesis, heat stabilizer, hosphite heat stabilizer, mechanism, polycondensation kinetics, pecific viscosity, carboxyl content, phosphorus containing polymer, lycolysis, hydrolysis

BSTRACT: The effect of phosphite heat stabilizers on the synthesis f polyethyleneterephthalate (PET) and its properties, and the echanism of the action of the additives was studied. The kinetics f diethylolterephthalate polycondensation were determined from the mount of ethylene glycol evolved and the amount of energy required o stir the reaction mixture; the polymer properties were determined y its specific viscosity (0.5% solution of PET in tricresol), the arboxyl group content and visually by the degree of coloration. It as found necessary to increase the amount of catalyst (cobalt acetate

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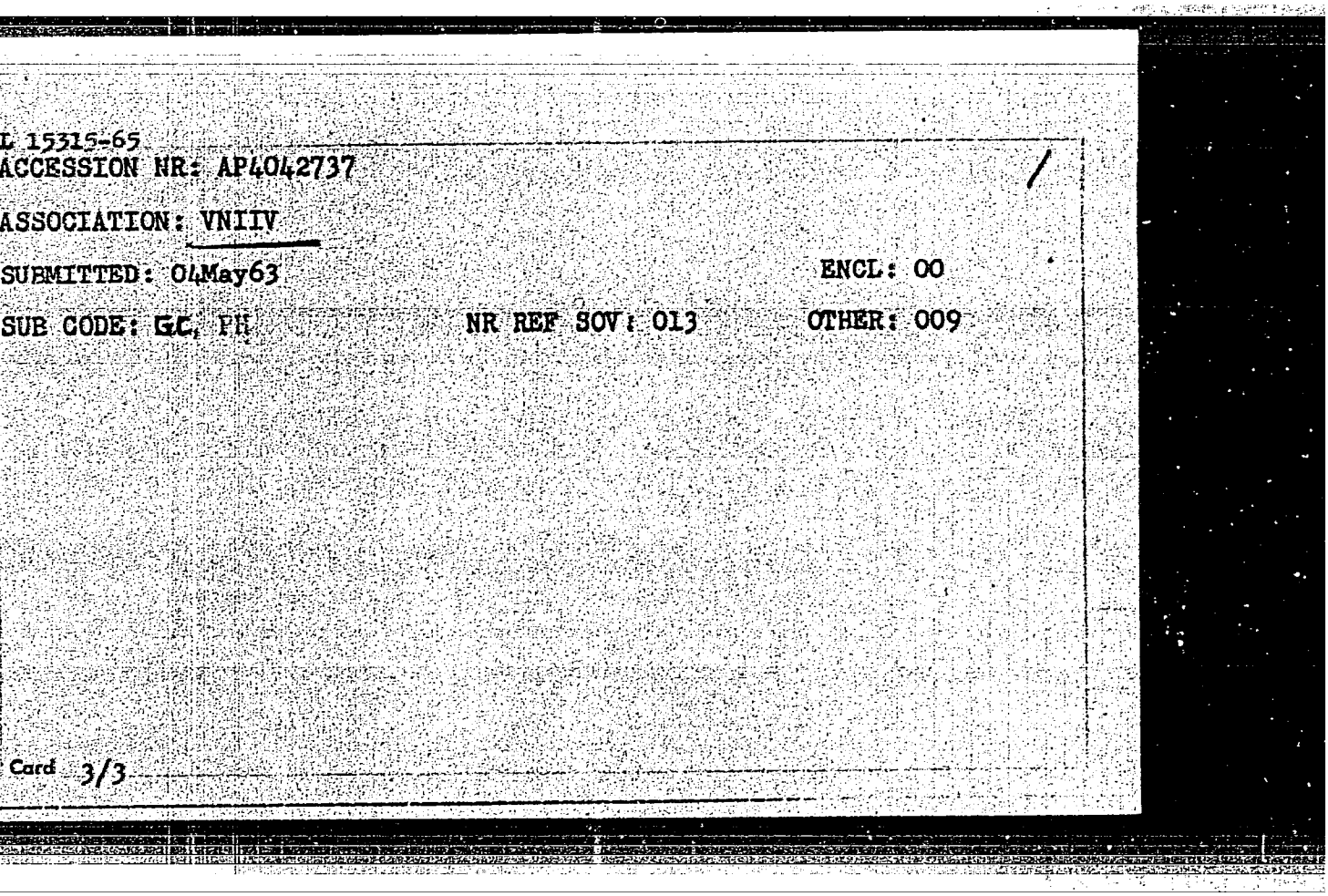
with antimony trioxide) from 0.02% to 0.03% on weight of DMT when using phosphoric acid esters as stabilizer; otherwise a lower molecular weight polymer was obtained. Addition of the phosphite at the start of the polycondensation retarded the reaction rate; a longer time was required to obtain the same molecular weight material obtained by reaction without the additive. Addition of the phosphite when the reaction was about 70% completed had almost no effect on the polycondensation rate. If polycondensation was conducted in the absence of free ethylene glycol the phosphite had almost no effect on the reaction even if introduced at the start of it. The presence of phosphorus in the polymers shows that the phosphites or their glycolysis (hydrolysis) products react with PET. The amount of phosphorus in the polymer depended on the heat stabilizer used (triphenyl-, tri-p-tert. butylphenyl-, or dodecylphenyl phosphite). Addition of 0.25% phosphite when polycondensation was about 70% complete retarded the destructive reactions (increased the specific viscosity and reduced the number of COOH groups) and improved the color and thermal stability of the PET in comparison to the polymer obtained without phosphite addition. Orig. art. has: 5 tables and 6 figures.



L 15315-65
ACCESSION NR: AP4042737

ASSOCIATION: VNIIV

SUBMITTED: 04May63 ENCL: 00

SUB CODE: GC, FH NR REF SOV: 013 OTHER: 009

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4336-65 EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4/Pt-10 AFWL/AEDC(a)/
SSD/ASD(p)-3 WW/RM
CCESSION NR: AP4042738 S/0183/64/000/004/0033/0035

THORS: Terekhova, G.M.; Mikhaylov, N.V.; Tokareva, L.G.

TLE: Heat stability of polyethyleneterephthalate (PET) containing esters of phosphoric acid

URCE: Khimicheskiye volokna, no. 4, 1964, 33-35

PIC TAGS: polyethyleneterephthalate, heat stability, phosphite, kylphenylphosphite, heat stabilizer, specific viscosity, terminal rboxyl group, polycondensation, triphenylphosphite, tributyl- enylphosphite, dodecylphenylphosphite, octylphenylphosphite

STRACT: The heat stabilization of PET with alkylphenylphosphites 270, 280, 290 and 300C was evaluated by determining the specific scosity of 0.5% solutions of the polymer in tricresol and deter- ning the terminal carboxyl groups. 0.01-5%, on weight of DMT, the phosphites (triphenyl-, tri-p-tert.butylphenyl-, p-dodecyl- enyl-, and p-octylphenylphosphite) were added to the polymer as % solutions in ethylene glycol when the polycondensation was about % complete. 0.025-0.25%, especially the higher weight, of the butylphenylphosphite stabilized the polymer in the 270-290C range;

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4336-65
CESSION NR: AP4042738

ve 290C the stabilizing effect was progressively reduced as
licated by a gradual increase in the number of -COOH groups and
crease in specific viscosity. The use of 0.25% of the tributyl-
nylphosphite in the polymer held at 270C or subjected to repeated
ting and holding at 270C preserved the color of the polymer,
nificantly lowered the reduction in viscosity (from 21 to 7%)
comparison with the unstabilized polymer, and maintained the
perties of the polymer practically the same as those of the
tial unheated polymer. Orig. art. has: 3 tables and 3 figures.

OCIATION: VNIIV

MITTED: 04May63 ENCL: 00

CODE: GC, NR REF SOV: 004 OTHER: 003

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L 16192-65 EWT(m)/EWG(v)/EWP(j)/T Pc-4/Pe-5 ESD(t)/ASD(m)-3 RM/GW
ACCESSION NR: AP4046262 S/0183/64/000/005/0013/0016

AUTHOR: Mikhaylov, N. V.; Pokrovskaya, N. B.

TITLE: A fiber based on chlorinated polyvinylchloride and nitrocellulose (vinitron)

SOURCE: Khimicheskiye volokna, no. 5, 1964, 13-16

TOPIC TAGS: polyvinylchloride, chlorinated polyvinylchloride, nitrocellulose, synthetic fiber, mixed polymer fiber, fiber thermal stability, fiber chemical stability, fiber shrinkage, fiber water repellency, fiber light stability

ABSTRACT: The purpose of the study was modification of chlorinated polyvinylchloride (CPVC) which has high chemical but low thermal and light resistance, by using a solution of mixed polymers. The composition of the optimal mixture, the preparation of the mixture and the fiber and the latter's properties were investigated. Nitrocellulose (NC) was selected as admixture for its known influence on CPVC thermal stability. Various ratios of the 2 polymers in acetone were tested. Maximal stability (6-7 days) was found for a 70-30 ratio of CPVC:NC

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L 16192-65

ACCESSION NR: AP4046262

3

ercent by weight. A 24 percent concentration with a 130-200 sec. viscosity was sed for the fiber. Microscopic examination revealed NC in the dispersion phase, nd CPVC as the dispersion medium. The fiber was formed by the wet process. Acetone concentration also influenced the fiber strength; its optimum was 7-9%. The optimal temperature was found at 50-60C. A twisted fiber could then be ormed from the fresh fiber in water at 80C. The new Vinitron fiber showed igh chemical resistance (e.g. against mineral acids, oxidizers, some organic olvents) and retained its physico-mechanical properties under u.v. light. Its hrinkage was 3 percent compared to 55-57 percent for CPVC. Its operating emperature was 60-70 percent higher. It also resists wetting. It is being tried lone or mixed with wool for work clothes, industrial filters, etc. with good reliminary results. Orig. art. has: 3 figures and 4 tables

ASSOCIATION: VNIIV (All-Union Scientific Research Institute of Synthetic Fibers)

UBMITTED: 29Jun63 ENCL: 00

UB CODE: MT, OC NO REF SOV: 010 OTHER: 003

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15708-65 EWA(v)/EWT(m)/EWP(j)/T Pc-4/Pe-5 ASD-3/ESD(t)/SSD/AFWL/ASD(m)-3

CCESSION NR: AP4046263 S/0183/64/000/005/0022/0026

THOR: Mikhaylov, N. V.; Gorbacheva, V. O.; Ayzenshteyn, E. M.; B
okhlova, N. S.; Petukhov, B. V.

TLE: The influence of molecular weight upon the structure and properties of
vsan 15

URCE: Khimicheskiye volokna, no. 5, 1964, 22-26

PIC TAGS: synthetic fiber, polyester fiber, polyethylene terephthalate fiber,
olecular weight, fiber structure, fiber property, lavsan, polymer crystalliza-
n, polymer amorphization, polymer orientation

STRACT: The relation between structure and molecular weight was investi -
ted for lavsan, a polyester fiber, and a fiber from polyethylene terephthalate
ETP) for the purpose of improving the properties of polyester fibers; PETP
sembles lavsan at certain stages. Crystallization kinetics, orientation and
rphology were determined. Polymers with a 16-30,000 molecular weight and

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5708-65
CESSION NR: AP4046263

ers of 17-25,000 molecular weight were investigated; the methods for determ-
ng molecular weight and properties are enumerated. Dilatometric curves
ween 40-140C and density measurements showed that an increase in molecular
ght decreased polymer tendency to crystallization. The higher the molecular
ght, the broader the interval of the glassforming range (51-96C). Amorphiza-
n of PETP increased with increasing molecular weight. Sc did the coefficient
$\kappa = \frac{\Delta n_i}{\Delta n_c}$) (double refraction index) for determining the orientation of the isotropic
er. The same applied to lavsan. Fiber strength paralleled molecular weight;
s was obtained at higher temperatures. Data on swelling and dissolution in
percent sulfuric acid showed fibers with higher molecular weight more resist-
to the attack of the acid. Such conditions of structural formation provide good
sibilities for obtaining lavsan fibers of great strength. Orig. art. has: 7 fig-
s and 1 table

SOCIATION: VNIIV

BMITTED: 03Aug63 ENCL: 00
B CODE: ME, GC NO REF SOV: 010 OTHER: 004

2/2

IOVLEVA, M.M.; MIKHAYLOV, N.V.; MIKHELEVA, G.A.; SHABLYGIN, [illegible]

Properties of gel particles in spinning solutions. Khim. volok. no.6:41-44 '64.

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

MAYBORODA, V.I.; MIKHAYLOV, N.V.; [illegible], S.P.

Action of modifiers in the formation of viscose. Khim. volok. no.6:46-50 '64. (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; SEMENOVSKAYA, L.A.

Study of the structure of cellulose hydrate fibers by the method of sorption of quaternary ammonium bases from aqueous solutions. Vysokom. soed. 6 no.3:522-526 Mr'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut iskustvennogo volokna.

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; NEMCHENKO, E.A.; DENISENKO, N.V.

Study of the fine molecular structure of cellulose hydrate fibers by the determination of shear modulus. Vysokom. soed. 6 no.3:527-533 Mr'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 8750-65 EWG(j)/EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/T/EWA(h)/EWA(l) Pc-4/Pr-4/
Ps-4/Pt-10/Peb ASD(m)-3/RAEM(t)/ASD(p)-3/ESD(t) RM/WW

ACCESSION NR: AP4043779 S/0190/64/006/008/1411/1414

AUTHOR: Nurmukhametov, R. N.; Bondareva, L. V.; Shigorin, D. N.; Tokareva, L. G.; Nikhaylov, N. V.

TITLE: Application of the luminescence method to determine the state of stabilizing additives in polymers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 6, no. 8, 1964, 1411-1414

TOPIC TAGS: di-β-naphthyl-n-phenelenediamine, di-β-naphthyl-n-phenelenediamine antioxidant, antioxidant, polypropylene fiber, polyamide fiber, di-β-naphthyl-n-phenelenediamine luminescence spectra, polymer additive, photooxidation inhibitor, polymer stabilizer, synthetic fiber

ABSTRACT: A study is made of the absorption and luminescence spectra of N,N'-di-2-naphthyl-p-phenylenediamine (I) used as a stabilizing additive possessing a light- and heat-protective action on polypropylene and polyamide fibers. From identifications of the luminescence spectra of solutions and fibers containing the addi-

Card 1/3

tive it was concluded that a solid molecular solution is formed with the addition of I to the polymer. The fibers and solutions containing I were subjected to heat treatment and to gamma and ultraviolet irradiation. The consumption of I in the polymers was determined by recording the intensity of the initial fluorescence band. Solutions of I had absorption bands in the near UV region. The primary protective effect of I is related to its function as a filter absorbing the UV section of the light. The photochemical inhibiting effect according to Semenov is based on the termination of the reaction caused by free radicals. With the absorption of light and gamma quanta, and also with heat treatment, a molecule of I gives up an electron easily and various positive ions and ion radicals are formed. As a result of these treatments colored products are formed from I. It is assumed that the primary photochemical act in I was the photoionization, which apparently proceeds through the triplet state. From the ease with which the photooxidation of molecules of I occurred, it can be concluded that I is a strong antioxidant capable of inhibiting photooxidation processes in polymers. It can be seen from the observed similarity in the change of

8750-65

ACCESSION NR: AP4043779

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luorescence in fibers with stabilizing additives during UV or gamma irradiation and during heating in nitrogen, that there is a far-reaching analogy in the mechanism of photochemical and thermal destruction of polymers. Orig. art. has: 4 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 15Aug63 ATD PRESS: 3113 ENCL: 00

SUB CODE: OC, GC NO REF SOV: 012 OTHER: 002

Card 3/3

EYFER, I.Z.; FAYNBERG, E.Z.; MIKHAYLOV, N.V.

Effect of the orientation of molecular chains on the dielectric anisotropy of fibers. Khim. volok. no.2:48-50 '65.
(MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 32996-65 EPF(c)/EPR/EWT(m)/EWP(j)/T Pc-4/Pr-4/Ps-4 JAJ/RM/WW

ACCESSION NR: AP5007419 S/0286/65/000/004/0059/0059

AUTHOR: Mikhaylov, N. V.; Tokareva, L. G.; Popov, A. G.; Kheyfits, L. A.; Virezub, S. I. 36 35 B

TITLE: A method for stabilizing polymers. Class 39, No. 168425

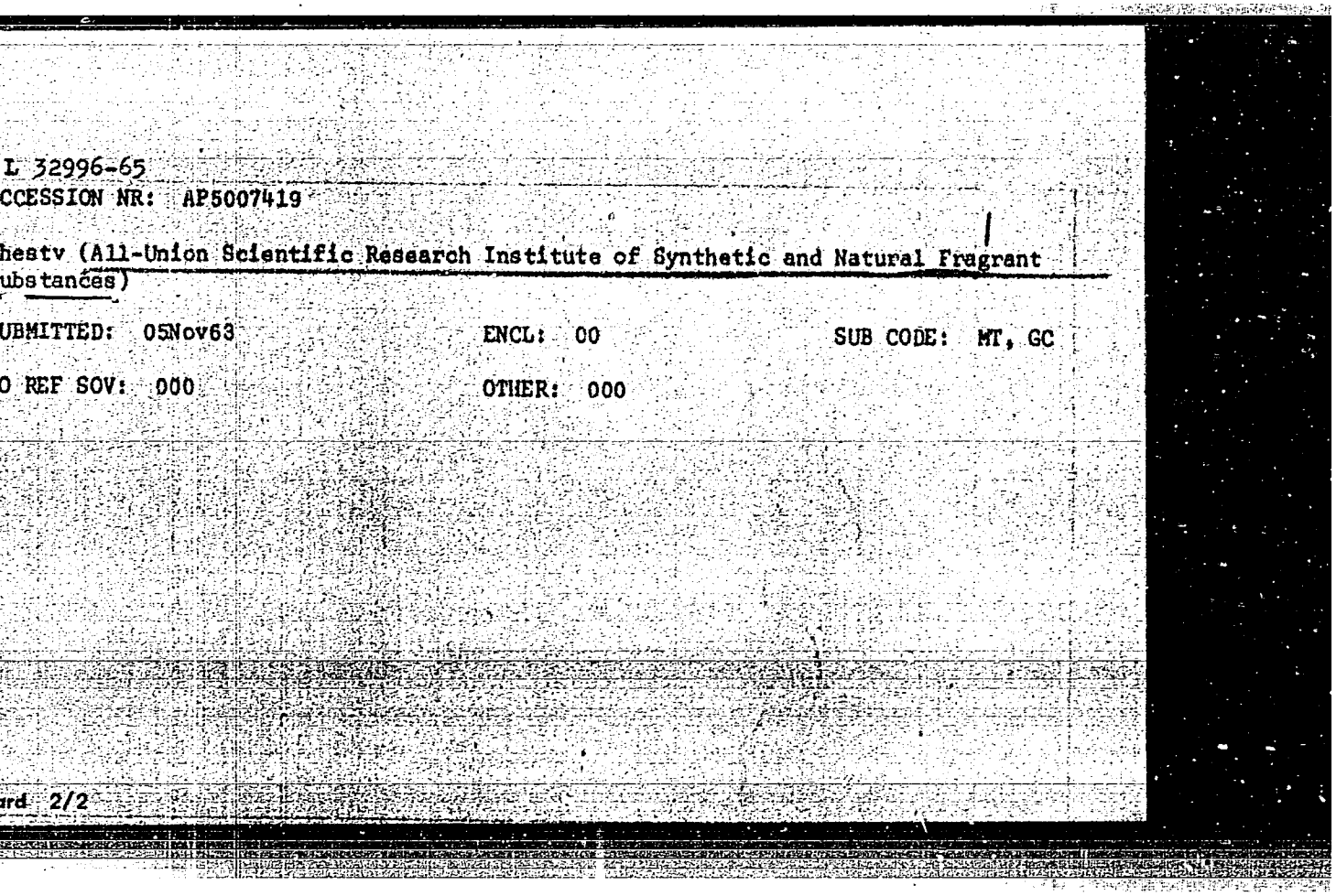
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 59

TOPIC TAGS: polymer, stabilization, thermal stability

ABSTRACT: This Author's Certificate introduces a method for stabilizing polymers, e.g. polypropylene, and articles made from them. The polymers are made more resistant to heat and light by adding 2,6-di-(tetrahydrodicyclopentadienyl)-4-methylphenol to the polymer melt as a stabilizer. The Author's Certificate also covers a modification of this method in which the quantity of 2,6-di-(tetrahydrodicyclopentadienyl)-4-methylphenol added is 0.1-1.5% of the weight of the polymer.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skogo institut isskustvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers); Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh i natural'nykh dushistykh vesh-

Card 1/2



L 32996-65
CCESSION NR: AP5007419

hestv (All-Union Scientific Research Institute of Synthetic and Natural Fragrant ubstances)

UBMITTED: 05Nov63 ENCL: 00 SUB CODE: MT, GC

O REF SOV: 000 OTHER: 000

ard 2/2

[redacted], N.V., YEFIMOVA, L.G., NYRKOVA, L.F.

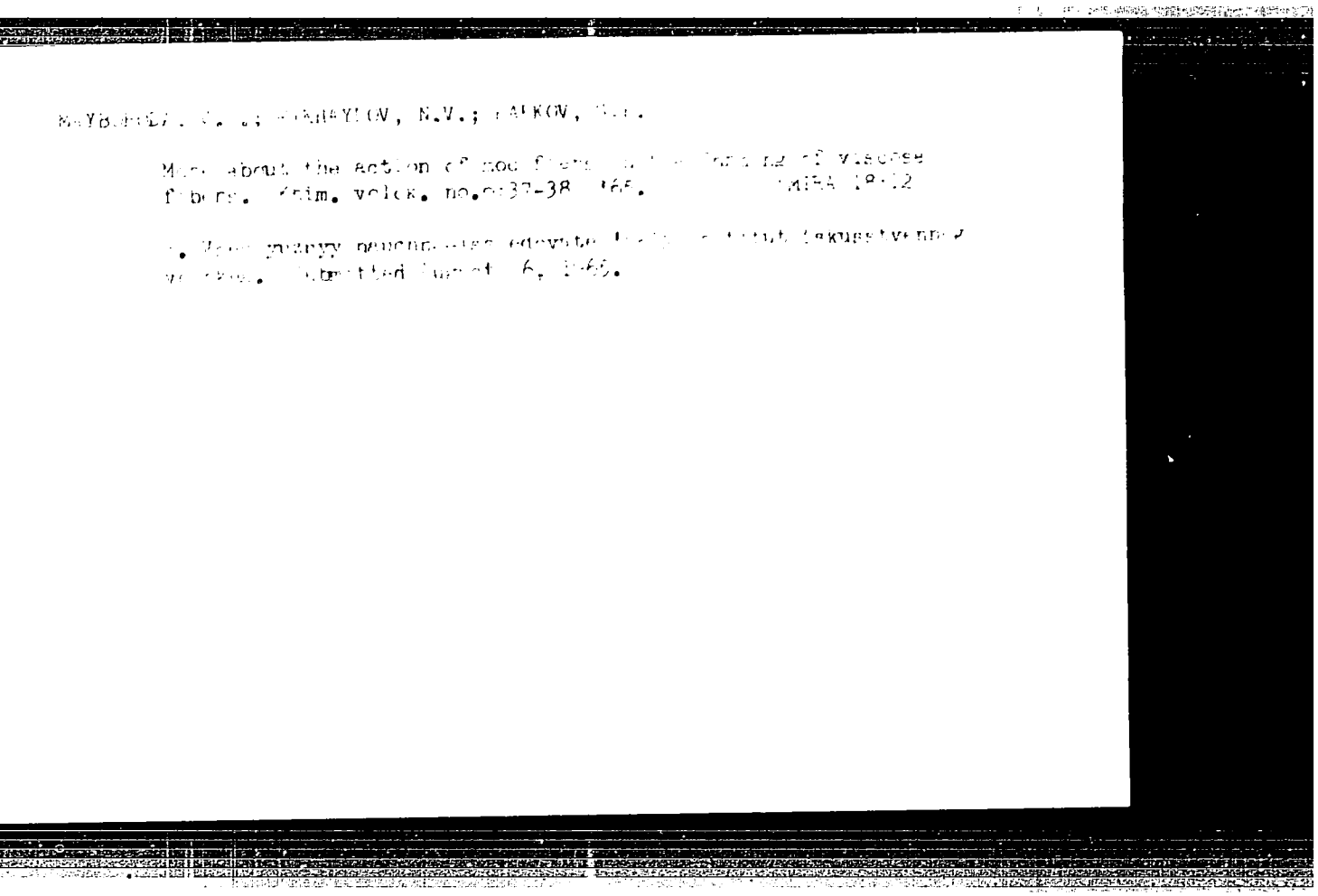
Viscosity of the diluted solutions of some fiber forming polymers.
Prom. volok. no.5 8-11 '65. (MIRA 18:12)

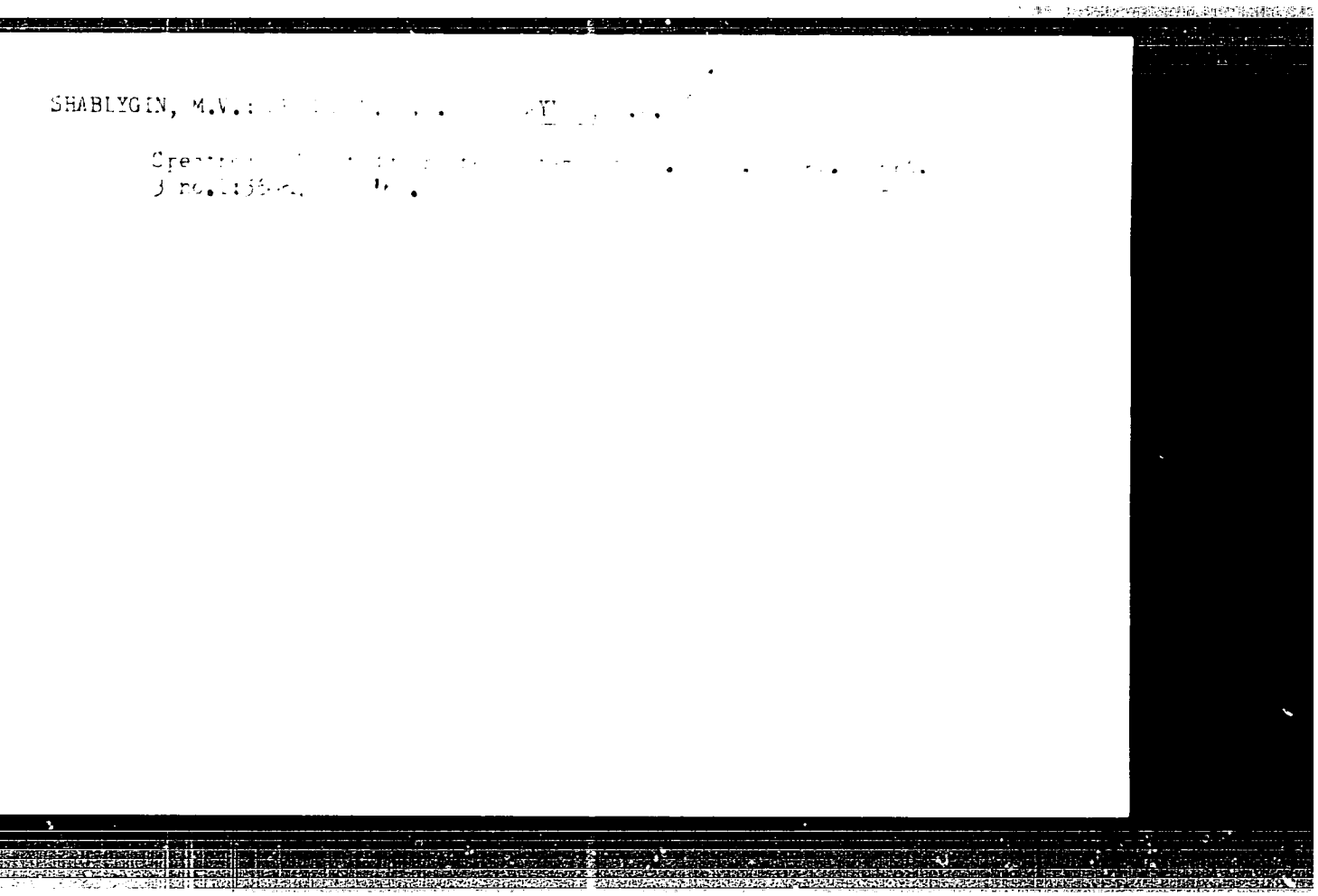
1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

MIKHAYLOV, [illegible] ... [illegible]EVSKIY, Ye.M.; NIKOLAYEVA, N.I.; [illegible], N.I.; MAYBORODA, V.I.; LIN'KOVA, T.K.; BOGDANOV, V.T.

Properties and production methods of [illegible] fibers. Khim. volok. no.6:3-7 '65. (MIRA 18:12)

1. Vsesoyuznyy [illegible] ... Leningrad. Submitted March 2, 1965.





SHABLYGIN, M.V.:

GORBACHEVA, V.O.; MIKAHYLOV, N.V.

Differential-thermal analysis of polymers. Vysokom.soed. 7 no.1:28-
32 Ja '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

0810-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/EEC(t)/T Pc-4/Pr-4/Pt-10/
IJP(c) GG/RM
SSION NR: AP5008364 S/0190/65/007/003/0411/0416

65
60
B

ORS: Mikhaylov, N. V.; Faynberg, E. Z.; Eyfer, I. Z.

E: A method of determining orientation of polymer materials by the
ectric constant

CE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 3, 1965, 411-416

C TAGS: dielectric constant, polymer, orientation, anisotropy, polypropylene,
tetrafluoroethylene, polyethylene terephthalate

RACT: The authors have developed a method for determining the orientation of
cular chains in polymeric material, such as fibers, by measuring the dielec-
constant. This technique assumes that the material is electrically aniso-
ic. This anisotropy may be represented by the index $n = E_{aa}/E_{rr}$, where E_{aa}
he dielectric constant in the axial direction, E_{rr} in the radial direction.
ct measurements of E_{rr} with satisfactory precision may be made, but accurate
rminations of E_{aa} are difficult. It is possible, however, to do this indi-
ly by taking two readings at different angles and by solving rather simple
/2

tions. The authors describe a device designed to permit measurement at erent angles relative to the fiber axis. The advantage of this technique, ontrasted with the optical method, is that measurements may be made at wave-ths where the phase state and morphology of the fibers have no appreciable ct on the anisotropy. The authors examined stretched and unstretched fibers ifferent chemical composition: polyethylene terephthalate, polypropylene, tetrafluoroethylene, and nitron. The results proved that the technique is able for determining orientation. Reproducibility proved to be high. Actual ured and computed values are given in a table in the article. Orig. art. 2 figures and 1 table.

CIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo na (All-Union Scientific Research Institute of Synthetic Fibers)

ITTED: 29Apr64 ENCL: 00 SUB CODE: MT, EM

F SOV: 004 OTHER: 003

GIRAICH, YA., T.T.; MIKHAYLOV, N.V.; MAYBORODA, V...

Preparation of a cross-linked caproic fiber. Tru. [illegible].6: 712-714 '65

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna i opytnyy zavod Vsesoyuznogo nauchno-issledovatel'skogo instituta iskusstvennogo volokna.

PAPKOV, S.P.; YEFIMOVA, S.G.; MIKHAYLOV, N.V.; BYRKOVA, L.F.

Forms in which polyvinyl alcohol is separated from solution when a precipitant is added. Vysokom. soed. 8 no. 1:69-75 Ja '66 (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna. Submitted February 12, 1965.

ACC NR: AP6011436 SOURCE CODE: UR/0020/66/167/004/0873/0875

AUTHOR: Polyakov, N. V.; Mikhaylov, N. V.; Rebinder, P. A. (Academician)

ORG: Institute of Physical Chemistry, Academy of Sciences SSSR (Institut fizicheskoy khimii Akademii nauk SSSR)

TITLE: The influence of vibration on plastic deformation of metal

SOURCE: AN SSSR. Doklady, v. 167, no. 4, 1966, 873-875

TOPIC TAGS: lead, plastic deformation, metal deformation, vibration stress, vibration analysis

ABSTRACT: In a series of experiments designed to determine the influence of application of simultaneous deformation and vibrating forces on the plastic deformation of metal, metal samples were deformed by the simultaneous application of static compressive force and vibration (frequencies of 10—40 cps with vibration amplitude 0.6 mm, and 15—90 cps with amplitude 0.15 mm). Some experiments were performed with the simultaneous application of two superimposed frequencies: 40 cps with amplitude 0.6 mm, and a superimposed variable frequency from 40 to 90 cps with amplitude 0.15 mm). Lead was chosen as an experimental metal, since room temperature (20C) is a hot-working temperature for this metal.

Card 1/2 UDC: 539.378

ACC NR: AP6011436

Graphs of the kinetics of deformation were produced by an oscillograph. The investigations showed that the vibrational field intensified the process of plastic deformation. The resistance to deformation decreased, and the relative deformation increased by several times without disruption of the surface of the sample. An analysis indicated that increasing frequency of vibration caused an increase in the deformation and a reduction in the specific resistance to deformation. Increasing the amplitude of the vibration intensified the effect still further. At frequencies of 80—90 cps, frequency begins to play the most important role; at these frequencies, the surface of the sample showed smoothness characteristic of samples deformed without stress concentrations. Internal stresses are also distributed more evenly. Orig. art. has: 1 table and 3 figures.

SUB CODE: 20,11/ SUBM DATE: 10Aug65/ ORIG REF: 008

Card 2/2

MIKHAYLOV, Nik. Vas.; MIKHAYLOV, N.V.

Lowering the viscosity of dispersed systems by vibration. Dokl. AN SSSR 155 no. 4:920-923 Ap '64. (MIRA 17:5)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom A.N.Frumkinym.

24.4000 1136, 1137, 1156

S/020/60/135/003/010/039
B019/B077

AUTHORS: Miknaylov, N Ya and Yagn, Yu I

TITLE: An Experimental Investigation of the Ultimate Strength of Thin-walled Nickel Tubes Under Various Loads, Stresses, Torques, and Inner Pressures

PERIODICAL: Doklady Akademii nauk SSSR, 1960 Vol 135, No 3, pp. 545 - 548

TEXT: This paper was presented at the I Vsesoyuznyy s"yezd po teoreticheskoy i prikladnoy mekhanike (I All-Union Conference of Theoretical and Applied Mechanics) and is an extensive study of homogeneous and isotropic materials using different kinds of stress deviators. The tests were done with technical pure nickel tubes. A special testing machine made it possible to apply tension, torque, and inner hydraulic pressure to the specimens. The stress, change of area, angle of twist and the radial deformation were measured. The authors constructed a three dimensional sub space of the five dimensional space of the stress deviator by using the obtained data. These curves characterize the limit states of the

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86052

An Experimental Investigation of the Ultimate Strength of Thin-walled Nickel Tubes Under Various Loads, Stresses, Torques, and Inner Pressures

S/020/60/135/[illegible]
B019/B077

aterial This type of presentation clearly shows that the limit states agree with the third criterion of the theory of strength The authors conclude from a general analysis of the test data that a dependence of the ultimate strength of the material on the nature of loading and the force factors exist There are 2 figures 2 tables, and 3 references: Soviet and 1 German

SSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)

RESENTED: June 17, 1960 by L I Sedov, Academician

UBMITTED: June 15, 1960

ard 2/2

ABRAMOV, Yu. V.: MIKHAYLOV, K. Ye.

USSR (600)

Electric Welding

Butt welding of tools with the aid of high-frequency currents. Stan. i instr. 23 no. 12, 1952.

Monthly List of Russian Accessions, Library of Congres , March 1953. Unclassified.

Михайлов, Н.Е.

DEMIN, Yevgeniy Nikolayevich; MIKHAYLOV, N.Ye., retsenzent; VAYNTRAUB, D.A., inzhener, redaktor; BORODULINA, I.A., redaktor izdatel'stva; SOKOLOVA, L.V., tekhnicheskiy redaktor

[Progressive methods of designing and preparing pressmoulds] Progressivnye metody proektirovaniia i izgotovleniia pressform. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957. 126 p. (MLRA 10:7)

(Pressing machinery) (Plastics--Molding)

MIKHAYLOV, N. Z.

Nocturnal aerotherapy at the seashore. Probl. Tubark., Moskva No. 6, Nov.-Dec. 50. p. 59-61

1. Of Yalta Central Clinic Sanatorium No. 1 (Heads of Sanatorium--Candidate Medical Sciences G. P. Fedorov and Honored Physician RSFSR V. K. Tarantayev).

CIML 20, 3, March 1951

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; SEMENOVSKAYA, I.A.

Structure of cellulose hydrate fibers from data of the sorption of bases from the liquid phase. Vysokom. soed. [illegible] N '65. (MIRA [illegible])

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna. Submitted December 25, 1964.

GUSATINSKIY, A.N.; KOLOBOVA, K.M.; MIKHAYLOV, N.S., NEMNONOV, S.A.

Use of X-ray spectra for detecting lower silicon oxide. Izv. AN SSSR. Neorg. mat. 1 no.6:877-879 Je '65. (MIRA 18:8)

1. Institut fiziki metallov AN SSSR i Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy alyuminiyevo-magniyevyy institut.

PAPKOV, S.P.; IOVLEVA, M.M.; MIKHAYLOV, N.V.

Drop formation in the flow of vis[illegible] medium.
Prim. volok. no.4:40-43 '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 00582-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5021596 UR/0286/65/000/013/0069/0069

AUTHORS: Mikhaylov, N. V.; Tokareva, L. G.; Potemkina, Z. I.; Korneyeva, A. M.; Fedorina, ZH. A.; Burmistrov, S. I.

TITLE: A method for thermal stabilization of polyamides. Class 39, No. 172486

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 69

TOPIC TAGS: polyamide, thermal stability, stabilizer, triazine

ABSTRACT: This Author Certificate presents a method for thermal stabilization of polyamides by adding stabilizers. To increase the assortment of materials, the derivatives of triazine, such as N-paraoxyphenyl-2, 4-diaminotriazine-1,3,5, or amino-4-para-anisidinotriazine-1,3,5 are used as stabilizers. The stabilizer may be added in the amount of 0.5% by weight.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

SUBMITTED: 30Oct64 ENCL: 00 SUB CODE: OC

NO REF SOV: 000 OTHER: 000

Card 1/1